

Owner's Manual

SmartPro® SLT & SmartPro® XL

Intelligent Tower (Accessory Slot-Equipped) UPS Systems

• Line-Interactive Operation • Sine-Wave Output • Extended Run (XL) Options

SmartPro SLT Models: SMART1050SLT & SMART1500SLT

SmartPro XL Model: SMART750XL



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Important Safety Instructions



SAVE THESE INSTRUCTIONS

This manual contains instructions and warnings that should be followed during the installation, operation and storage of all Tripp Lite UPS Systems. Failure to heed these warnings will void your warranty.

UPS Location Warnings

- Install your UPS indoors, away from excess moisture or heat, conductive contaminants, dust or direct sunlight.
- For best performance, keep the indoor temperature between 32° F and 104° F (0° C and 40° C).
- Leave adequate space around all sides of the UPS for proper ventilation.

UPS Connection Warnings

- Connect your UPS directly to a properly grounded AC power outlet. Do not plug the UPS into itself; this will damage the UPS.
- Do not modify the UPS's plug, and do not use an adapter that would eliminate the UPS's ground connection.
- Do not use extension cords to connect the UPS to an AC outlet.
- If the UPS receives power from a motor-powered AC generator, the generator must provide clean, filtered, computer-grade output.

Equipment Connection Warnings

- Do not use Tripp Lite UPS Systems for life support appliances in which a malfunction or failure of a Tripp Lite UPS System could cause failure or significantly alter the performance of a life-support device.

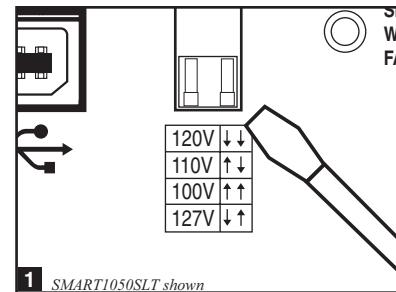
Battery Warnings

- Your UPS does not require routine maintenance. Do not open your UPS for any reason except battery replacement. There are no user-serviceable parts inside.
- Because the batteries present a risk of electrical shock and burn from high short-circuit current, observe proper precautions. Unplug and turn off the UPS before performing battery replacement. Use tools with insulated handles, and replace the existing batteries with the same number and type of new batteries (Sealed Lead-Acid). Do not open the batteries. Do not short or bridge the battery terminals with any object. Tripp Lite offers a complete line of UPS System Replacement Battery Cartridges (R.B.C.). Visit Tripp Lite on the Web at www.tripplite.com/support/battery/index.cfm to locate the specific replacement battery for your UPS.
- The UPS batteries are recyclable. Refer to local codes for disposal requirements, or in the USA only call 1-800-SAV-LEAD or 1-800-8-BATTERY (1-800-8-228-8379) or visit www.rbrc.com for recycling information. Do not dispose of the batteries in a fire.
- Unless your UPS system includes an external battery connector, do not attempt to add external batteries.

Quick Installation

1 Using a small tool, set the Voltage Dip Switch to match your input voltage. (All models are preset to the 120V setting.)

*Note: if the Voltage Dip Switch setting **does not** match your input voltage (if it is set above or below the input voltage), the UPS system will naturally consider the input voltage as a constant overvoltage or undervoltage condition. The UPS system will respond accordingly by automatically adjusting the input voltage to match the Voltage Dip Switch setting. This will cause constant, unnecessary wear on the UPS system.*



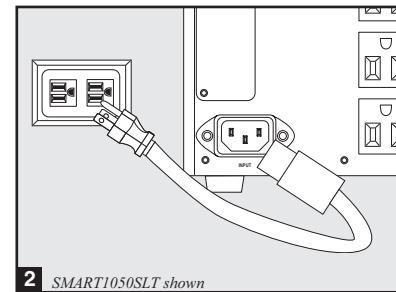
1 SMART1050SLT shown

2 Plug one end of the detachable line cord into your UPS's AC Input Receptacle and the other end into an electrical outlet.

Plug the UPS directly into a properly grounded, 3-wire, 15-amp AC outlet that does not share a circuit with a heavy electrical load (such as an air conditioner, refrigerator, etc.).

After plugging your UPS in, check the Site Wiring Fault LED on its rear panel. If it is lit, the outlet is improperly wired; unplug the UPS and have a qualified electrician check the outlet.

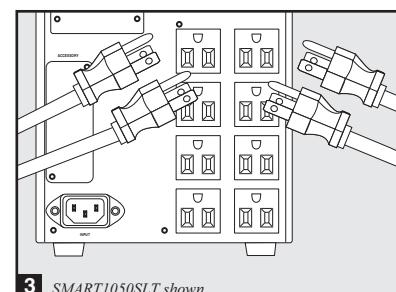
Note: Once your UPS is plugged in, it will begin charging its batteries. If this is the first time you have plugged in your UPS, or if your UPS has been in storage for a prolonged period, it will need to charge its batteries for at least 6 hours before it can support connected equipment in the event of a power failure.



2 SMART1050SLT shown

3 Plug your equipment into your UPS.

Your UPS is designed to support computer equipment only. You will overload your UPS if you connect devices with high power demands such as household appliances or laser printers to your UPS's outlets.

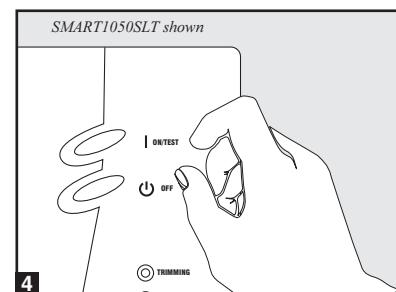


3 SMART1050SLT shown

4 Turn your UPS ON:

- Press the "ON/TEST" Switch
- Hold it for several seconds until you hear a beep
- Release it

Your UPS will begin providing power to its outlets.



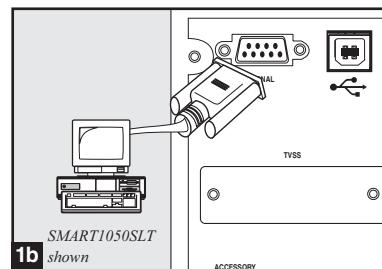
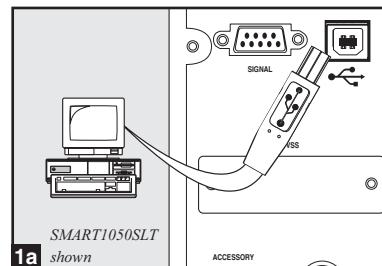
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Optional Installation

These connections are optional. Your UPS will function properly without these connections.

1 USB and RS-232 Serial Communications

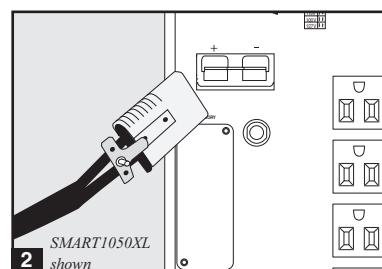
Use the included USB cable **1a** and/or DB9 serial cable **1b** to connect the communication port on your computer to the communication port of your UPS. Install on your computer the Tripp Lite PowerAlert Software appropriate to your computer's operating system. Consult your PowerAlert manual for more information.



2 External Battery Connection (select models)

All UPS models come with a robust internal battery system; select models feature connectors that accept optional external battery packs (sold separately from Tripp Lite*) to provide additional runtime. Adding external batteries will increase recharge time as well as runtime. See battery pack owner's manual for complete installation instructions. Make sure cables are fully inserted into their connectors. Small sparks may result during battery connection; this is normal. Do not connect or disconnect battery packs when the UPS is running on battery power.

* See Specifications section for battery packs available for your specific UPS model.



Basic Operation

Front Panel Switches



“ON/TEST” Switch: This switch controls four separate UPS functions:

UPS Power On

To turn power on at the outlets, press the “ON/TEST” switch, hold it for several seconds until you hear a beep, then release it.

UPS Self-Test

When the UPS is in normal operation (the “VOLTAGE OK” LED is on and the “ON BATTERY” LED is off), press the “ON/TEST” switch and hold it until you hear a beep. This initiates a 10-second self-test of the battery. The UPS will shift to battery power (the “ON BATTERY” LED will illuminate) for ten seconds.

Alarm Silence

To silence the UPS “on-battery” alarm, press the “ON/TEST” switch and hold it until you hear a beep.

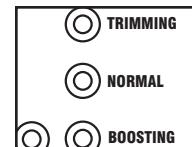
UPS Cold Start

To use your UPS as a stand-alone power source when AC power is unavailable (i.e. during a blackout), press the “ON/TEST” switch and hold it until you hear a beep. The UPS will then provide battery power to its outlets. The “ON BATTERY” LED will be illuminated since your UPS will be operating from battery power.

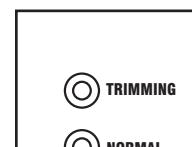


“OFF” Switch: This switch turns power off at the outlets. Press this switch, hold it until you hear a beep, then release it. The UPS will continue charging its batteries and the fan will continue to cool internal components even after you turn the UPS receptacles off. To turn the UPS OFF completely, including the charger, disconnect the UPS's power cord after pressing the “OFF” switch.

Front Panel Indicator Lights



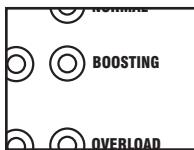
“NORMAL” LED: This green light will be lit when the UPS is providing AC utility power to connected equipment without needing to alter its voltage.



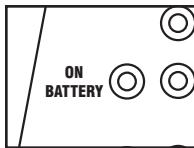
“TRIMMING” LED: This yellow light is lit when the UPS is trimming AC utility power to nominal levels and providing it to connected equipment. The UPS will click faintly when trimming AC power. This is a normal, automatic function of your UPS and no action is required on your part. If your UPS has to trim power frequently, you may be in a poor power area, and should consider obtaining power protection for equipment that is not connected to a UPS.

Basic Operation *(continued)*

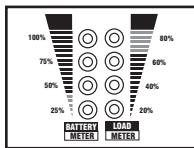
Front Panel Indicator Lights *continued*



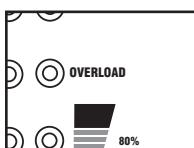
“BOOSTING” LED: This yellow light will be lit when the UPS is boosting AC utility power to nominal levels and providing it to connected equipment. The UPS will click faintly when boosting AC power. This is a normal, automatic function of your UPS and no action is required on your part. If your UPS has to boost power frequently, you may be in a poor power area, and should consider obtaining power protection for equipment that is not connected to a UPS.



“ON BATTERY” LED: This yellow light will be lit when your UPS is providing your equipment with battery power. The UPS will also beep every two seconds, unless silenced by the “ON/TEST” Switch.

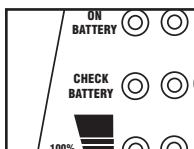


“BATTERY METER” LEDs: These four green lights show the approximate charge remaining in the UPS battery. If the battery charge is very low, the 25% LED will flash and the UPS alarm will beep every second to warn you that the remaining charge will be depleted quickly by connected equipment.



“LOAD METER” LED: These four green lights show approximately how much of the UPS’s power capacity is used to support the equipment connected to the outlets.

“OVERLOAD” LED: This red light will be lit when the power draw of equipment connected to the Battery, Surge and Noise Protected outlets exceeds your UPS’s power capacity. The UPS alarm will beep continuously. Immediately disconnect excess equipment from the outlets until the light and alarm turn off.



“CHECK BATTERY” LED: This red light will be lit if your UPS’s microprocessor detects a battery fault or if the UPS battery is very weakly charged. Let your UPS charge for 8 hours, then run another self-test. If the light stays on, replace the batteries.

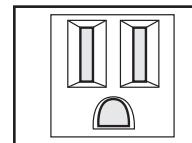
SHORT CIRCUIT: If a short circuit occurs, the UPS will stop providing power to connected equipment and the alarm will sound. If this happens, eliminate the short circuit.

OVERTEMPERATURE: If the temperature inside the UPS gets too high, the NORMAL, BOOSTING, TRIMMING and ON BATTERY LEDs will all light at once and the alarm will sound. If this happens, check to make sure the UPS’s ventilation grills are unobstructed and that it is located in a cool, well-ventilated area.

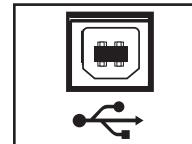
FAULT: If the UPS detects an internal failure, its NORMAL, BOOSTING and TRIMMING LEDs will light and its alarm will sound. If this happens, disconnect the UPS and contact Tripp Lite for service.

Basic Operation *(continued)*

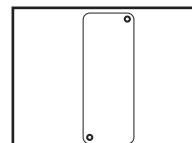
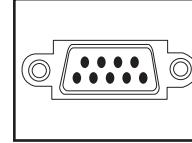
Rear Panel



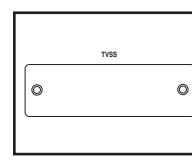
AC Outlets: These 15-amp receptacles provide your connected equipment with voltage regulated AC output from the AC line during normal operation and from battery power during power failures. These outlets also protect connected equipment against power surges on the AC line. Your UPS is designed to support only computer equipment with battery power. Do not connect equipment with high power demands (like laser printers) to these outlets.



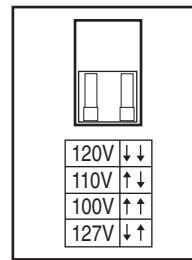
Communications Ports (USB or RS-232): These ports connect your UPS to any workstation or server. Use with Tripp Lite’s PowerAlert Software and included cables to enable your computer to automatically save open files and shut down equipment during a blackout. Also use PowerAlert Software to monitor a wide variety of AC line power and UPS operating conditions. Consult your PowerAlert Software manual or contact Tripp Lite Customer Support for more information. See “USB and RS-232 Serial Communications” in the “Optional Installation” section for installation instructions.



Accessory Slot: Remove the small cover panel from this slot to install optional accessories to remotely monitor and control your UPS. Refer to your accessory’s manual for installation instructions. Contact Tripp Lite Customer Support for more information, including a list of available SNMP, network management and connectivity products.



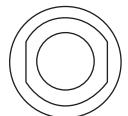
TVSS Cover Plate (Select Models Only): Remove this plate to install optional modem/network surge protection modules, available for purchase by special arrangement with Tripp Lite.



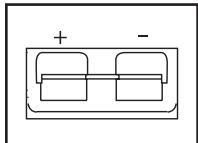
Voltage Dip Switch: Matches the UPS System’s output voltage to the input voltage available at the wall outlet. See Quick Installation section for setting instructions. Note: if the Voltage Dip Switch setting **does not** match your input voltage (if it is set above or below the input voltage), the UPS system will naturally consider the input voltage as a constant overvoltage or undervoltage condition. The UPS system will respond accordingly by automatically adjusting the input voltage to match the Voltage Dip Switch setting. This will cause constant, unnecessary wear on the UPS system.

Basic Operation *(continued)*

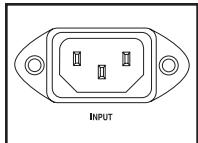
Rear Panel *continued*



Input Breaker: Protect your electrical circuit from overcurrent draw from the UPS load. If this breaker trips, remove some of the load, then reset it by pressing the breaker in.



External Battery Connector (Select Models Only): Use to connect Tripp Lite external battery packs for additional runtime. The specifications section of this manual lists the Tripp Lite external battery packs that are compatible with your model. Refer to instructions available with the battery pack for complete connection information and safety warnings.

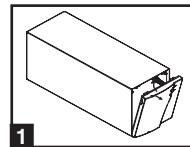


AC Input Receptacle: Connect one end of the detachable line cord into this receptacle and the other end into your wall outlet.

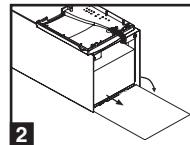


“SITE WIRING FAULT” LED: This red LED will be lit if the UPS detects a problem with the wiring of the AC outlet you connect it to. If this occurs, have the outlet inspected by a qualified electrician. Note that while the UPS will detect many common wiring faults, including a missing ground, reversed polarity and overloaded neutral circuits, it cannot detect every conceivable wiring problem.

Battery Replacement

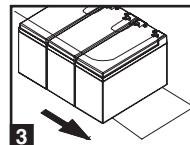


Under normal conditions, the original battery in your UPS will last several years. Contact Tripp Lite for information about replacement batteries.



1 Carefully pull the front panel down, out and away from the UPS.

Be careful not to accidentally disconnect the ribbon cable connecting the front panel to the rest of the UPS. Place the front panel on top of the UPS, out of the way.



2 Unlock and lower the battery door.

3 Carefully pull the batteries from the UPS. Replace batteries.

Carefully disconnect the old batteries from the UPS, then connect the new batteries exactly as the old ones were connected, positive (red) connectors together and negative (black) terminals together.

Reassemble UPS.

Reverse Steps 1-3, above.

Storage and Service

Storage

First turn your UPS OFF: press the “OFF” switch to turn power off at the outlets, then disconnect the power cord from the wall outlet. Next, disconnect all equipment to avoid battery drain. If you plan on storing your UPS for an extended period of time, fully recharge the UPS batteries once every three months by plugging the UPS into a live AC outlet and letting the UPS charge for 4-6 hours. If you leave your UPS batteries discharged for an extended period of time, they may suffer permanent loss of capacity.

Service

Before returning your UPS for service, follow these steps:

1. Review the installation and operation instructions in this manual to ensure that the service problem does not originate from a misreading of the instructions. Also, check that the UPS System’s circuit breaker(s) are not tripped. This is the most common cause of service inquiries which can be easily remedied by following the resetting instructions in this manual.
2. If the problem continues, do not contact or return the UPS to the dealer. Instead, call Tripp Lite at (773) 869-1233. A service technician will ask for the UPS’s model number, serial number and purchase date and will attempt to correct the problem over the phone.
3. If the problem requires service, the technician will issue you a Returned Material Authorization (RMA) number, which is required for service. If you require packaging, the technician can arrange to send you proper packaging. Securely pack the UPS to avoid damage during shipping. do not use Styrofoam beads for packaging. Any damages (direct, indirect, special, incidental or consequential) to the UPS incurred during shipment to Tripp Lite or an authorized Tripp Lite service center is not covered under warranty. UPS Systems shipped to Tripp Lite or an authorized Tripp Lite service center must have transportation charges prepaid. Mark the RMA number on the outside of the package. If the UPS System is within the 2-year warranty period, enclose a copy of your sales receipt. Return the UPS for service using an insured carrier to the address given to you by the Tripp Lite service technician.

Specifications

Tripp Lite has a policy of continuous improvement. Specifications are subject to change without notice.

SmartPro SLT UPS Systems

Model: Series #:	SMART1050SLT AGSM1000DT	SMART1500SLT AGSM1500DT
Input		
Nominal Voltage:*	100, 110, 120 or 127 VAC	100, 110, 120 or 127 VAC
Frequency (± 3 Hz.):	60 Hz.	60 Hz.
Recommended Dedicated Electrical Circuit:	15 amp	15 amp
Output		
Nominal Voltage:*	100, 110, 120 or 127 VAC	100, 110, 120 or 127 VAC
Frequency (± 3 Hz.):	60 Hz.	60 Hz.
Capacity (VA/Watts)		
@ 127 VAC:	1050/670	1500/950
@ 120 VAC:	1050/670	1500/950
@ 110 VAC:	945/603	1350/855
@ 100 VAC:	840/536	1200/760
Waveform (Line and Battery Modes):	sine wave	sine wave
Maximum Harmonic Distortion (Linear Load/Non-Linear Load):	≤ 3% / ≤ 6%	≤ 3% / ≤ 6%
Battery		
Battery Runtime (Half Load/Full Load) Minutes:	20/7	20/8
Battery Recharge Time (to 80% Capacity):	2-4 hours	2-4 hours
Transfer Time:	4-8 milliseconds	4-8 milliseconds
Battery System Voltage:	36 VDC	36 VDC
FCC:	Class B	Class B
Approvals:	UL, cUL, NOM	UL, cUL, NOM

SmartPro XL UPS System

Model: Series #:	SMART750XL AGSM751ST
Input	
Nominal Voltage:*	100, 110, 120 or 127 VAC
Frequency (± 3 Hz.):	60 Hz.
Recommended Dedicated Electrical Circuit:	15 amp
Output	
Nominal Voltage:*	100, 110, 120 or 127 VAC
Frequency (± 3 Hz.):	60 Hz.
Capacity (VA/Watts)	
@ 127 VAC:	750/450
@ 120 VAC:	750/450
@ 110 VAC:	675/430
@ 100 VAC:	600/382
Waveform (Line and Battery Modes):	sine wave
Maximum Harmonic Distortion (Linear Load/Non-Linear Load):	≤ 3% / ≤ 6%
Battery	
Battery Runtime (Half Load/Full Load) Minutes:	33/10+
Battery Recharge Time (to 80% Capacity):	2-4 hours
Transfer Time:	4-8 milliseconds
Battery System Voltage:	36 VDC
FCC:	Class B
Approvals:	UL, cUL, NOM

* A set of user-selectable Voltage DIP Switches (see Quick Installation section) match the UPS system's output voltage to the input voltage available at the wall outlet.

+ Battery runtime can be extended with the addition of optional Tripp Lite External Battery Packs (sold separately). SMART750XL models use BP36V/27 battery packs. External batteries will increase both the battery runtime and the battery recharge time.

Specifications *(continued)*

FCC RADIO/TV INTERFERENCE NOTICE: Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference using one or more of the following measures: reorient or relocate the receiving antenna; increase the separation between the equipment and the receiver; connect the equipment into an outlet on a circuit different from that which the receiver is connected; consult the dealer or an experienced radio/television technician for help. The user must use shielded cables and connectors with this product. Any changes or modifications to this product not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This device complies with part 15 of the FCC rules. Operation is subject to the following 2 conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Note on Labeling

Two symbols are used on the label.

V~ : AC Voltage

V== : DC Voltage



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